Evaluation of Parameters Influencing Delays for Road Users at Railway Level Crossings in Sri Lanka

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Design, construction and maintenance of railway level crossings are responsibilities of Sri Lanka Railways. The funding agency in this regard is the Ministry of Finance where allocations are provided from the annual budget for above targets.

The additional time consumption born by the road users at level crossing is a current issue to be addressed at the earliest possible in order to minimize the delay and inconvenience. According to the SLR the reason behind in this issue is the poor geometry & lack of maintenance. Further more the officials of SLR highlighted the lack of equipped laboratories or skilled technical staff for doing research and also the application of advance high tech equipment such as sensors and replaceable surface materials. One of the main reasons behind the said issues is the high capital cost of implementation of said needful.

Under this research around 125 locations of level crossings were visited all over the country where the deficiencies and weaknesses influenced for delay was carefully observed. A random sample of 42 numbers of crossings (including good and bad sections) was selected for evaluation. The prominent causes detected were categorized for quantitative analysis. Few locations with high contribution on delay and safety such as Yangalmodara, Kolathenna, and Kapuwatta were taken as case studies and compared with some satisfactory level crossing such as Bentota. As the parameters such as number of rail tracks, traffic flows, type of crossings etc. defers from place to place it was decided to compare the delay per vehicle for 100m distance (50m distance from either sides of centre lines of the tracks) with the time taken by an average vehicle to travel the same distance in a particular location.

Correlations were checked among the parameters. The gravity of causes was assessed by giving a rating (1-3) at different locations. Furthermore a number of discussions were made with the responsible officers of Sri Lanka Railway and Road Development Authority.

With the help of the information gathered from the two organizations and also with the data collection and the evaluations carried out during the research it was able to forward some improvement proposals/ mitigation measures in order to minimize the delay at level crossings in Sri Lanka.

It was found that the main parameters causing for this delay are visibility, surface defects and poor vertical alignment in approaches and in between tracks due to settlement or in proper designs implemented at level crossings.

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